

A PRELIMINARY ACCOUNT OF THE PHILIPPINE SPECIES  
OF UROPHYLLUM WALL., PLEIOCARPIDIA K. SCH.  
AND PRARAVINIA KORTH. (RUB.)

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*Urophyllum* Wall., *Pleiocarpidia* K. Sch., *Praravinia* Korth. and *Antherostele* Brem. form, together with some small and as yet undescribed genera occurring in the Malay Peninsula, Sumatra and Borneo, a well defined group. In the classification of the Rubiaceae worked out by Bentham and Hooker, and accepted with slight modifications by Schumann in the "Natürliche Pflanzenfamilien," they would fall in the Mussaendeae. The delimitation of this tribe, however, is unsatisfactory: on the one hand it is not sufficiently distinguished from the Hedyotideae (Oldenlandieae in Schumann's classification), while on the other hand its constituents show such divergent characters, for instance in the nature of the placentation and of the seed, that they can not be regarded as sufficiently related. The only difference between the Hedyotideae and the Mussaendeae lies in the dry or fleshy consistency of the pericarp, and as there is very often no clear correlation between the consistency of the latter and the morphological differentiation of the ovary, but little value can be attached to this distinction, and it is certainly no wonder that it has never been rigorously applied. Still it is somewhat surprising that both by Bentham and Hooker and by Schumann species with drupaceous fruits (*Metabolos* Bl.) have been referred to the type genus of the tribe with dry fruits. For a better classification our knowledge is, however, as yet too incomplete.

The characters of the small group to which our four genera belong are: the large number of ovoid alveolate seeds; the paired axile placentas; and the valvate aestivation of the corolla lobes. Other characters are the axillary inflorescences; the simple interpetiolar stipules; and the indehiscent fruits with their fleshy pericarp and large ramified placentas; and finally, the insertion of the stamens in the upper part of the corolla-tube or in the throat, and the decurrence of the filaments to the base of the tube; the dioeciousness, and the differentiation of the flowers in male flowers with a rudimentary style and female flowers with staminodes provided with completely sterile anthers, but as a rule only slightly reduced in size; the insertion of stamens and staminodes at the same height; the

presence of flattened hairs in the corolla throat; and the pluri-ocular ovary. The first-named characters are those found in the greater part of the Hedyotideae and Mussaendeae; the second set are found also in groups related to the one with which we are dealing; and the last may be regarded as the diagnostic features of the group itself.

For the identification of the four genera represented in the Philippine flora the following key may be used:

#### KEY TO THE GENERA

1. Leaves with small acaridomatia. Corolla lobes inside densely covered with clavate hairs; hairs in the throat similar, but larger. Anthers linear, syngenesious. . . . .4. *Antherosteles* Brem.
1. Acaridomatia entirely absent. Corolla lobes inside glabrous or with a few pointed hairs at the base or at the top; hairs in the throat never clavate. Anthers ovate or oblong, never syngenesious. . . . .2
2. Corolla with a larger number of segments than the calyx. Corolla throat with a dense beard of stiff and pointed, glossy-white hairs. Inflorescences sessile or subsessile, often reduced to a single flower; the flowers also sessile or subsessile. . . . .3. *Praravinia* Korth.
2. Corolla with the same number of segments as the calyx. Corolla throat bearded, but the hairs neither stiff nor glossy-white. Inflorescences sessile, subsessile or pedunculate, sometimes reduced to a single flower; flowers always pedicellate. . . . .3
3. Inflorescences trichotomously corymbose or paniculate. Hairs in the corolla throat moniliform from the base. Style branches thick, short and truncate, rectangularly spreading and cohering in a thick, centrally depressed disc ("peltate stigma"). . . . .2. *Pleiocarpidia* K. Sch.
3. Inflorescences consisting of a terminal umbel and a whorl of flowers separated from the umbel by an internode of varying length; the whorl sometimes reduced or absent; if entirely absent, then the umbel not rarely sessile or subsessile, and sometimes reduced to a single flower. Hairs in the corolla throat with a few irregularly spaced one-sided constrictions near the top. Style branches erect or ascending, acute or obtuse, but never truncate, and never cohering in a thick disc. . . . .3. *Urophyllum* Wall.

The characters of *Antherosteles* have been discussed already in the preceding paper, and at the same place due attention was given to the diagnostic value of the hairs in the corolla throat.

The heteromery between calyx and corolla is confined to *Praravinia*. Though this character has been ascribed to several species of *Urophyllum* (a New-Guinean species even owes its name to it), I have found these allegations everywhere erroneous. As the calyx, however, is very often subtruncate, the number of segments is not always easily ascertainable, and occasionally, moreover, a few irregularities may occur. That the

number of stamens in *Praravinia* should be double the number of corolla lobes, as stated in the original description, is entirely erroneous: a reinvestigation of the type specimen has shown that there is a regular alternation between the stamens and the corolla lobes. The mistake in the original description, though probably a mere slip of the pen, has unfortunately caused a great deal of confusion: on account of this supposed heteromery *Praravinia* was made by Miquel the type genus of a new family; and the genus *Williamsia* was created by Merrill, because in his plants he had looked in vain for the second series of stamens.

The original description of *Pleiocarpidia* (*Aulacodiscus* Hook. f. non Ehrenb.) is also misleading. In the specimens of the type species *Pl. enneandra* (Wight) K. Sch. which I could investigate I found always 7 corolla lobes, 7 stamens and 7 carpels, and though 8-merous and even 9-merous flowers may occur, the number certainly does not vary between 8 and 16. In the various Sumatran and Bornean species which are to be referred to this genus the number varies between 5 and 7. The really distinctive characters are to be looked for elsewhere, namely in the form of the inflorescence, in the nature of the hairs in the corolla throat, and in the way in which the thick and truncate style branches cohere in a thick disc ("peltate stigma").

The delimitation of *Urophyllum* offers more difficulties than that of the other genera, and in order that a satisfactory definition may be arrived at, several species will have to be removed to new genera. This applies even to *U. villosum* Wall., the first of Jack's two species published by Wallich in the first edition of Roxburgh's *Flora Indica*. At first sight this seems impossible, for according to the International Rules of Nomenclature this species should be regarded as the type species. In my opinion, however, neither *U. villosum* nor *U. glabrum*, the second of Jack's species published by Wallich, can be regarded as the type. The first species belonging to this circle of affinity and recognized as generically distinct from all other rubiaceous plants known at that moment was the plant described in 1823 by Blume under the name *Wallichia arborea* Reinw. ex Bl. The name *Wallichia* could not be retained, for it had been used already in 1819 by Roxburgh for another genus; for this reason Blume changed it in 1826 in *Axanthes* and a few years later, because *Axanthes* is a word of hybrid origin, in *Maschalanthe*. The latter is an illegitimate name, and needs therefore no further consideration. *Axanthes* was rejected in 1851 by Korthals, who was of opinion that Blume's genus was indistinguishable from *Urophyllum* Wall., published in 1824. If Korthals was right in reducing *Axanthes* to *Urophyllum*, Blume's species should, in my opinion, be accepted as the type, for it

was the first that was recognized as generically distinct. One might argue, however, that Korthals was wrong, because there is no general agreement between the two genera, but only between Blume's genus and the second of Wallich's species. We should not forget, however, that Korthals himself was doubtless convinced that the agreement was complete, and that but one genus ought to be recognized; and from that moment, it seems to me, Blume's species became the type to which the name *Urophyllum* was bound. This connection can not be severed for the benefit of another generic delimitation: new genera split off from the old one should get new names and other type species. In this case it is also the most practical solution of the difficulty, because in this way the name *Urophyllum* is retained for the largest number of species. Among the latter are those described as occurring in the Philippine Islands, at least for so far as they have not been removed here to the genera *Praravinia* and *Antherosteles*.

The Philippine species of *Urophyllum* are difficult to classify, but this is merely due to the fact that they are as yet still imperfectly known: the majority have been described from fruiting material, and even now flowers are but rarely found in the available material. Among the specimens which I have studied I have seen several undescribed species, but as none of them were provided with flowers, I have refrained from describing them. The Philippine botanists, who doubtless have more complete material at their disposal, are in a better position to do this. The species which have been previously described may be recognized by the aid of the following key.

#### KEY TO THE PHILIPPINE SPECIES OF UROPHYLLUM

1. Inflorescences distinctly pedunculate, i.e. peduncle nearly as long as or longer than the pedicels; sometimes distinctly shorter, but then the rhachis of the inflorescence of about the same length as the pedicels. . . . . 2
1. Inflorescences sessile or shortly pedunculate, but the peduncles always shorter than the pedicels; rhachis always rudimentary. . . . . 8
2. Inflorescence with two involucels, one at the base and the other at the top of the rhachis. Stipules linear. . . . . 3
2. Inflorescence with a single involucl; flowers in a triad or umbellate. Stipules ovate-triangular. . . . . 5
3. Leaves with 7 pairs of nerves; all or nearly all more than 10 cm. long. . . . . 1. *U. memecyloides*.
3. Leaves with 5 pairs of nerves; always shorter than 10 cm. . . . . 4
4. Leaves less than 2 cm. wide, linear-oblong. Female flowers in triads. Scales of the involucels not more than 1 mm. long. . . . . 2. *U. urdanctense*.

4. Leaves more than 2 cm. wide, oblong. Female flowers solitary. Scales of the involucels in most inflorescences more than 1 mm. long. . . . . 3. *U. caudatum*.
5. Leaves oblong-elliptic and provided with 12 pairs of nerves. . . . . 4. *U. elliptifolium*.
5. Leaves narrower and with less than 10 pairs of nerves. . . . . 6.
6. Pedicels pubescent. Calyx distinctly lobed and pubescent. Young leaves villous, older ones glabrescent. . . . . 5. *U. subglabrum*.
6. Pedicels glabrous or subglabrous. Calyx truncate and glabrous. Young leaves glabrous. . . . . 7.
7. Leaves with 8-9 pairs of nerves; the latter like the midrib on the lower side reddish. Reticulation dense and below very conspicuous. . . . . 6. *U. reticulatum*.
7. Leaves with 7 pairs of nerves, and neither the latter nor the midrib reddish beneath. Reticulation hardly conspicuous, lax. . . . . 7. *U. spec. adhuc indescrib.*
8. Leaves with 15-17 pairs of nerves. Inflorescences with more than a dozen long-pedicellate flowers. . . . . 8. *U. platyphyllum*.
8. Leaves with fewer nerves and inflorescences with fewer flowers. . . . . 9.
9. Stipules narrowly linear, inside glabrous. Leaves linear or linear-oblong. . . . . 9. *U. acuminatissimum*.
9. Stipules less narrow, inside densely villous. Leaves wider. . . . . 10.
10. Stipules not more than 5 mm. long. Calyx lobes acuminate. . . . . 10. *U. mindorense*.
10. Stipules much longer. Calyx lobes not acuminate. . . . . 11.
11. Stipules at least three times as long as wide and but little wider than the shoots. Flowers short-pedicellate. . . . . 11. *U. panayense*.
11. Stipules but little longer than wide, much wider than the shoots. Flowers long pedicellate. . . . . 12.
12. Shoots in herbarium material green. Leaves oblong, with 8-9 pairs of nerves. Stipules 1-1.5 cm. long. . . . . 12. *U. bataanense*.
12. Shoots in herbarium material yellowish. Leaves oblong-elliptic, with 10-11 pairs of nerves. Stipules 2 cm. long. . . . . 13. *U. leytense*.

1. ***Urophyllum memecyloides*** (Presl) Rolfe in Jour. Bot. **23**: 213 (1885); Vidal, Phan. Cuming. Philip. 119 (1885), Rev. Pl. Vasc. Filip. 152 (1886).

*Cymelonema memecyloides* Presl, Epim. 210 (1851); Walp. Ann. **3**: 890 (1853).

*Urophyllum glabrum* Jack apud Merr. in Philip. Bureau Forestry Bull. **1**: 53 (1903), apud Elm. Leaflet. Philip. Bot. **1**: 39 (1906), apud Merr. in Philip. Jour. Sci. Bot. **2**: 305 (1907); non Wall. in Roxb. Fl. Ind. **2**: 186 (1824).

*Urophyllum arboreum* (Reinw. ex Bl.) Korth. apud C. B. Robinson in Philip. Jour. Sci. Bot. **6**: 227 (1911), apud Merr., Enum. Philip. Pl. **3**: 521 (1923); non Korth. in Ned. Kruidk. Arch. **2**: 194 (1851).

Throughout the Philippine Islands, but not yet known from elsewhere.

The type specimen was collected in Samar, and described by Presl as belonging in the Melastomaceae. A second specimen found in the same island by Cuming (v. inf.) was identified by Rolfe, who transferred Presl's species to *Urophyllum*. Afterwards it was reduced first to *U. glabrum* Wall. and then to *U. arboreum* (Reinw. ex Bl.) Korth. From the latter it differs in the larger size of the leaves, the smaller stipules, the somewhat fewer flowered inflorescences, the 6- instead of 5-merous corolla, and above all in the presence of a complete ring of white hairs in the corolla throat: in Reinwardt's species the hairs are yellow, and they are arranged in fascicles surrounding the anthers and separated from each other by wide gaps. *U. glabrum* is a species of somewhat dubious identity: the description seems to point to the plant now known as *U. longifolium* Wight or a nearly related species, and in this way it was interpreted by Kurz in his "Burmese Flora." The description, as we now know, was drawn up by Jack and published by Wallich, but whether or not the latter was acquainted with Jack's type, is unknown: the specimens in the Wallich Herbarium, however, belong to the species for which the name has been used by all subsequent authors, Kurz alone excepted. Descriptions of this species have been given by Hooker f., King and Gamble, and Ridley. It differs from *U. memecyloides* in the smaller size of the leaves, the subglabrous stipules, the smaller and 5-merous flowers, and the imperfect ring of hairs in the corolla throat. *U. glabrum* appears to be confined to the Malay Peninsula, *U. arboreum* to Sumatra and Java, whereas in Borneo nearly related species occur, of which one has been described by Miquel under the name *U. micranthum*.

The material here referred to *U. memecyloides* consists mainly of fruiting branches, but as the most important characters in this group of species are found in the arrangement and color of the hairs in the corolla throat and the degree of reduction shown by the staminodes, it is not impossible that more than one species may be represented. On the whole, however, the material is fairly uniform.

The following specimens were studied:

LUZON. R i z a l : Mt. Irig, *Ramos B.S. 41895* (A, L),<sup>1</sup> fr.  
L a g u n a : Paete, *Ramos B.S. 10041* (L), fr.; San Antonio, *Ramos B.S. 23817* (L), fr.; Cavinti, *Amarillas B.S. 25801* (GH), ♂; *Canicosa B.S. 29459* (A), ♂. T a y a b a s : Lucban, *Elmer 4144* (A), ♀, 7598 (A), fr., 7638 (L), ♀ buds; Mt. Binuang, *Ramos & Edaño B.S.*

<sup>1</sup>EDITOR'S NOTE: In the citation of specimens, the following abbreviations for herbaria are used. (A) = Arnold Arboretum; (GH) = Gray Herbarium; (K) = Kew; (L) = Leiden; (NY) = New York; (U) = Utrecht.

28703 (A) (young buds); Infanta-Siniloan Trail, *Ramos & Edaño B.S. 29199* (GH), ♀. C a m a r i n e s : Maagnas, *Robinson B.S. 6339* (L), fr. MINDORO: Mt. Halcon, *Ramos & Edaño B.S. 40579* (A), fr. CATANDUANES: *Ramos B.S. 30508* (A), fr. SAMAR: without locality, *Cuming 1768* (L), ♂; Catubig River, *Ramos B.S. 24287* (GH), fr., *B.S. 24326* (A), fr.; *Edaño B.S. 24889* (GH), fr. LEYTE: Mt. Abucayan, *Edaño B.S. 41787* (A), fr.; without locality, *Wenzel 85* (A, GH), fr., *529* (A), fr., *539* (GH), fr., *658* (A), ♂. NEGROS ORIENTAL: Cuernos Mts., Dumaguete, *Elmer 9440* (A, L), ♀. PANAY: Capiz, Mt. Madaian, *Ramos & Edaño B.S. 30645* (GH), fr. MINDANAO. S u r i g a o : *Wenzel 2866* (A), ♂, *2629* (A), ♀; *Ramos & Pascasio B.S. 34546* (L), fr. B u k i d n o n : Mt. Dumalucpihan, *Ramos & Edaño B.S. 38989* (A), ♂. Z a m b o a n g a : Ma'angas, *Ramos & Edaño B.S. 36877* (A), fr. A g u s a n : Cabadbaran, *Elmer 14155* (A), fr.

2. ***Urophyllum urdanetense*** Elm., *Leafl. Philip. Bot.* **5**: 1900 (1913); *Merr., Enum. Philip. Pl.* **3**: 524 (1923).

MINDANAO: Agusan, Cabadbaran, Mt. Urdanete, *Elmer 13788* (A, L), fr., *exempla typi*.

Known from the type locality only, where it occurred at an altitude of 1500–1650 m. Very near to the preceding species but imperfectly described. Nearly related, but apparently distinct from the two preceding species is a plant collected on Mt. Daho in Jolo [*Ramos & Edaño B.S. 4391* (L), ♂].

3. ***Urophyllum caudatum*** Merr. in *Philip. Jour. Sci.* **7**: 481 (1920), *Enum. Philip. Pl.* **3**: 522 (1923).

LUZON: Ilocos Norte, Mt. Palimlim, *Ramos B.S. 33348* (A), fr., *exemplum typi*.

Known from one locality only.

4. ***Urophyllum elliptifolium*** Merr. in *Philip. Jour. Sci. Bot.* **5**: 247 (1910); Elm., *Leafl. Philip. Bot.* **3**: 998 (1911); Merr., *Enum. Philip. Pl.* **3**: 522 (1923).

PALAWAN: Mt. Pulgar, *Curran, F. B. 3871*, fr. *typus*, *nondum vidi*.

Merrill compares this species with the Bornean *U. subanurum* Stapf.

5. ***Urophyllum subglabrum*** Merr. in *Philip. Jour. Sci. Bot.* **12**: 162 (1917), *Enum. Philip. Pl.* **3**: 523 (1923).

LUZON: Nueva Ecija, Mt. Umingan, *Ramos & Edaño B.S. 26507* (A), fr., *exemplum typi*; Rizal, Mt. Irig, *Ramos B.S. 41960* (A, L), ♀ buds.

6. **Urophyllum reticulatum** Elm., Leaf. Philip. Bot. **3**: 999 (1911);  
Merr., Enum. Philip. Pl. **3**: 523 (1923).

SIBUYAN: Capiz, Magallanes, Mt. Giting-Giting, *Elmer 12506* (A, GH, L), fr. exempla typi.

7. **Urophyllum** spec. aff. **reticulatum**.

PANAY: Capiz, Jamindan, *Ramos & Edaño B.S. 31165* (A), fr., B.S. 31000 (L), (buds).

This is doubtless a good species, but as flowers are not available to me I have refrained from giving it a name.

8. **Urophyllum platyphyllum** Elm., Leaf. Philip. Bot. **3**: 999 (1911);  
Merr., Enum. Philip. Pl. **3**: 523 (1923).

SIBUYAN: Capiz, Magallanes, Mt. Giting-Giting, *Elmer 12363* (A, GH, L), fr., exempla typi.

Apparently related to *U. macrophyllum* (Bl.) Korth., but still imperfectly known.

9. **Urophyllum acuminatissimum** Merr. in Philip. Jour. Sci. Bot. **10**:  
106 (1915), Enum. Philip. Pl. **3**: 521 (1923).

LUZON: Laguna, San Antonio, *Ramos B.S. 15012* (L), fr.; *Mabesa B.S. 26791* (A), fr.; Tayabas, *Curran B.S. 13084* (L), fr.; Sorsogon, *Ramos B.S. 23551* (A), fr.; Camarines, Paracale, *Ramos & Edaño B.S. 33764* (L), fr.

An easily recognizable species, of which the flowers are still unknown.

10. **Urophyllum mindorense** Merr. in Philip. Jour. Sci. **20**: 464 (1922),  
Enum. Philip. Pl. **3**: 523 (1923).

MINDORO: Mt. Calavite, *Ramos B.S. 39379* (A), ♀, exemplum typi, *B.S. 39398* (A) (young buds).

The majority of the specimens hitherto referred to *U. bataanense* Elm. will have to find a place in the neighborhood of *U. mindorense*: their stipules are longer than those of the latter, but much narrower than those of *U. bataanense*. The specimens available to me were all fruiting ones, but even so it was easy to see that they belonged to at least two different species.

11. **Urophyllum panayense** Merr. in Philip. Jour. Sci. **17**: 482 (1920),  
Enum. Philip. Pl. **3**: 523 (1923).

PANAY: Capiz, Jamindan, *Ramos & Edaño B.S. 31318* (A), ♀, (corollas shed), *B.S. 31421* (A), (young buds); exemplum typi, *B.S. 31105* (A), (buds), *B.S. 30821* (A), (buds); Mt. Macosolen, *Ramos & Edaño B.S. 30819* (L) ♀.



12. **Urophyllum bataanense** Elm., Leaf. Philip. Bot. **1**: 40 (1906); Merr. in Philip. Jour. Sci. Suppl. **1**: 129 (1906), Enum. Philip. Pl. **3**: 522 (1923), p.p.; non Merr. in Philip. Jour. Sci. Bot. **2**: 305 (1907).

LUZON: Bataan, Mt. Mariveles, alt. 1200 m., *Williams* 407 (HG), fr.

I have not seen the type of this species, but of all the specimens which I have examined the one quoted above alone answers the description: those collected in other parts of Luzon, and in Mindoro, Bohol and Jolo belong, in my opinion, in the neighborhood of *U. mindorense*. The difference between the true *U. bataanense* and the next species on the other hand appears to be very small, and it is not impossible that further study will reveal their identity: as the type specimens were not at my disposition, I must leave the decision to the Philippine botanists.

13. **Urophyllum leytense** Merr. in Philip. Jour. Sci. Bot. **8**: 62 (1913), Enum. Philip. Pl. **3**: 522 (1923).

LEYTE: Mountains back of Dagami, *Ramos B.S. 15289*, typus, nondum vidi; Cabalian, *Ramos B.S. 41546* (A), fr., *B.S. 41573* (A, L), fr., *Wenzel 569* (A), fr. NEGROS ORIENTAL: Cuernos Mts., Dumaguete, *Elmer 9550* (A, L), ♀ (corollas shed); *Herre 1132* (A), fr.

A nearly related, as yet undescribed, species was collected in Mindoro [Pinamalayan, *Ramos B.S. 40963* (A), ♀; Mt. Halcon, *Ramos & Edaño B.S. 40595* (A), young buds].

Apart from the species enumerated above there are two more that deserve our attention. The first is *Urophyllum halconense* Merr. in sched., easily distinguishable from all other species found in the Philippine Islands by its hairy shoots and leaves and its solitary, long-pedicellate, hairy berries. It was collected on Mt. Halcon, Mindoro (*Ramos & Edaño B.S. 40707* [A], fr., *B.S. 40603* [A], ster.).

The other is a very curious plant with solitary subsessile flowers, provided with a 6-merous calyx and corolla and surrounded by a fairly large involucre; the buds are too young for a good description. It was found at Pinamalayan, Mindoro (*Ramos B.S. 40885* et *41022* [A, L], ♂).

The genus *Pleiocarpidia* is represented by a single species:

1. **Pleiocarpidia lanaensis** Merr. in Philip. Jour. Sci. **20**: 462 (1922), Enum. Philip. Pl. **3**: 524 (1923).

MINDANAO: Lanao, *Mrs. Clemens 882*, typus, nondum vidi; Zamboanga, Malangas, *Ramos & Edaño B.S. 37226* (NY), ♀; *Merrill 8098* (L), (buds); Bukidnon, Mt. Candoon, *Ramos & Edaño B.S. 38988* (NY), fr.

*Pleiocarpidia lanaensis* comes very near to a species found in British North Borneo and formerly regarded as identical with *Pl. enneandra* (Wight) K. Sch. [cf. Merrill in Univ. Cal. Publ. Bot. **15**: 282 (1929)]. Ridley [Jour. Bot. **70**: 193 (1932)] criticized this identification, expressing his conviction that it was an undescribed species. I am of the same opinion, and I will describe it, in a paper dealing with the genus *Pleiocarpidia* in the Malay Archipelago, under the name *Pl. sandahanica*. Both *Pl. lanaensis* and *Pl. sandahanica* are easily distinguishable from *Pl. enneandra* by the 5- or 6-merous flowers. *Pleiocarpidia lanaensis* differs from *Pl. sandahanica* in the puberous shoots and petioles, the pubescence of the midrib above, the broader, not scaphoid stipules, and the smaller size of the flowers and especially of the staminodes. The hairs in the corolla throat are shorter and show as a rule but four constrictions: they give therefore the impression of being 5-celled.

With regard to the Philippine representatives of *Praravinia* we experience the same difficulty as with those of *Urophyllum*: here too the majority of the descriptions have been based on fruiting material only. Apart from *Pr. triflora* Quisumb. et Merr. and *Pr. pubescens* Quisumb. et Merr. the species, however, are very similar, and probably all nearly related. A glance at the key, by the aid of which the 19 Philippine species can be identified, will give an impression of the differences between them. Six out of these 19 were up to now included in *Urophyllum*.

#### KEY TO THE PHILIPPINE SPECIES OF PRARAVINIA

1. Calyx lobes less than twice as long as wide. . . . . 2
1. Calyx lobes several times longer than wide. . . . . 18
2. Stipules always shorter than the internodes. . . . . 3
2. Stipules in the upper part of the shoots as long as or longer than the internodes. . . . . 16
3. Shoots and petioles either glabrous or pubescent, but not densely covered with long spreading hairs. . . . . 4
3. Shoots and petioles densely covered with long spreading hairs. . . . . 15
4. Leaves less than 6 cm. long. . . . . 5
4. Leaves more than 6 cm. long. . . . . 6
5. Leaves with 5-7 pairs of nerves; midrib and nerves beneath densely and softly pubescent. . . . . 1. *Pr. microphylla*.
5. Leaves with 7-8 pairs of nerves; midrib and nerves beneath sparingly and shortly pubescent. . . . . 2. *Pr. acuminata*.
6. Flowers distinctly pedicellate . . . . . 7
6. Flowers subsessile or sessile . . . . . 8

7. Shoots and petioles sparsely pubescent; ovary subglabrous. . . . .3. *Pr. viridescens*.
7. Shoots, petioles and ovary densely pubescent. . . . .4. *Pr. quadribracteolata*.
8. Shoots and petioles densely pubescent. . . . .9
8. Shoots and petioles glabrous or sparsely pubescent. . . . .10
9. Hairs curved and more or less spreading. Fruit globose. . . . .5. *Pr. lucbanensis*.
9. Hairs straight and appressed. Fruit ovoid. . . . .6. *Pr. Everetti*.
10. Leaves with 7-8 pairs of nerves, linear-lanceolate. . . . .11
10. Leaves with 9 or more nerve pairs, lanceolate to elliptic. . . . .13
11. Stipules with a few hairs, and calyx lobes with a trace of pubescence at the top, but for the rest all parts entirely glabrous. . . . .7. *Pr. glabra*.
11. Midrib and nerves on the underside sprinkled with long hairs. . . . .12
12. Scales of the upper involucl triangular. The two involucl separated from each other by a short stalk. . . . .8. *Pr. mimica*.
12. Scales of the upper involucl broadly ovate. The two involucl almost contiguous. . . . .9. *Pr. stenophylla*.
13. Involucl, flowers and fruits more or less densely pubescent. Berry 6-locular. . . . .10. *Pr. mindanaensis*.
13. Involucl, flowers and fruits subglabrous. Berry 8-locular. . . . .14
14. Leaves in herbarium material dark-brown, shoots nearly and berries quite black. Young leaves, petioles and shoots at first densely villous. . . . .11. *Pr. Loheri*.
14. Leaves in herbarium material but slightly discolored; shoots and berries brown. Young leaves, petioles and shoots at first but slightly villous. . . . .12. *Pr. sablanensis*.
15. Leaves with 10-11 nerve pairs; epidermis cells of the upper side very large, easily visible with a hand lens; hairs towards the base distinctly thickened. . . . .13. *Pr. affinis*.
15. Leaves with 13-17 pairs of nerves; epidermis cells much smaller, not distinctly visible with a hand lens; hairs not thickened towards the base. . . . .14. *Pr. panayensis*.
16. Young shoots, petioles, midribs and nerves densely villous. . . . .15. *Pr. longistipula*.
16. Young shoots, petioles, midribs and nerves glabrous or subglabrous. . . . .17
17. Leaves with 10-12 pairs of nerves. . . . .16. *Pr. negrosensis*.
17. Leaves with 17-20 pairs of nerves. . . . .17. *Pr. multinervia*.
18. Shoots sparsely villous, afterwards glabrescent. Leaves oblong. Scales of the upper involucl and calyx lobes lanceolate and 6-7 mm. long. . . . .18. *Pr. triflora*.
18. Shoots densely villous. Leaves linear-oblong. Scales of the upper involucl going out in a very long point. Calyx lobes very narrowly triangular, 10 mm. long, accrescent on the fruit to 17 mm. . . . .19. *Pr. pubescens*.

1. **Praravinia microphylla** (Merr.), n. comb.

*Urophyllum microphyllum* Merr. in Philip. Jour. Sci. Bot. 12: 161 (1917), Enum. Philip. Pl. 3: 523 (1923).

LUZON: Nueva Ecija, Mt. Umingan, alt. 1000 m., *Ramos B.S. 26389*, typus, nondum vidi; Nueva Vizcaya, Mt. Alzapan, *Ramos & Edaño B.S. 45581*, (A), ♂ ?

The plant collected on Mt. Alzapan, Nueva Vizcaya, does not answer the description too well; it is perhaps but a stunted specimen of the next species.

2. **Praravinia acuminata** (Merr.), n. comb.

*Urophyllum acuminatum* Merr. in Philip. Jour. Sci. Suppl. 1: 129 (1906), Enum. Philip. Pl. 3: 521 (1923).

*Urophyllum streptopodium* Wall. apud Elm., Leaf. Philip. Bot. 1: 40 (1906), non Wall. ex Hook. f., Fl. Brit. Ind. 3: 99 (1880).

LUZON: Rizal, Montalban, *Loher 6440* (K), ♂ (buds), *6409* (K), fr., *13758* (A), fr.; Mt. Lumutan, *Ramos & Edaño B.S. 29774* (A), fr.; Mt. Irig, *Ramos B.S. 41995* (A), fr.; Mt. Canumay, *Ramos B.S. 13792* (L), fr.; Isabela, Mt. Moises, *Ramos & Edaño B.S. 47254* (A), fr.; Bontoc, Mt. Masapilid, *Ramos & Edaño B.S. 37945* (A, L), (buds); Nueva Ecija, Mt. Umingan, *Ramos & Edaño B.S. 26391* (A, L), fr.

3. **Praravinia viridescens** (Elm.), n. comb.

*Williamsia viridescens* Elm., Leaf. Philip. Bot. 9: 3215 (1934).

LUZON: Pampanga, Mt. Pinatubo, Camp Stotsenburg, alt. 1000 m., *Elmer 22046* (NY, L, K) ♂ et *22078* (NY, L, K) ♀, exempla typorum; Bataan, Mt. Mariveles, *Robinson B.S. 6205* (L), fr.

4. **Praravinia quadribacteolata** (Merr.), n. comb.

*Urophyllum quadribacteolatum* Merr. in Philip. Jour. Sci. 17: 483 (1920), Enum. Philip. Pl. 3: 523 (1923).

LUZON: Tayabas, Infanta-Siniloan Trail, *Ramos & Edaño B.S. 29178* (A), fr.; Apayao, *Fenix B.S. 28161* (A), ♂, exemplum typi.

This species differs from the next in the distinctly pedicellate flowers, the somewhat longer scales of the upper involucre, and the softer pubescence on the underside of the leaves.

5. **Praravinia lucbanensis** (Elm.), n. comb.

*Urophyllum lucbanense* Elm. Leaf. Philip. Bot. 1: 71 (1906); Robinson in Philip. Jour. Sci. Bot. 6: 227 (1911); Merr., Enum. Philip. Pl. 3: 523 (1923), p.p.

LUZON: Tayabas, Lucban, *Elmer 7945* (A), fr., exemplum typi, *7937* (A, L), (buds); Laguna, San Antonio, *Ramos B.S. 20569* (L), fr.;

*Canicosa* B.S. 29458 (A), fr.; *Amarillas* B.S. 25121 (A), ♂ (buds); *McGregor* B.S. 22766 (A), fr.; Rizal, Montalban, *Loher* 6410 (K), fr.; Mt. Angilog, *Ramos* B.S. 40792 (A), fr.; Nueva Ecija, Mt. Umingan, *Ramos* B.S. 26405 (A), fr. CATANDUANES: *Ramos* B.S. 30415 (A), fr.

6. **Praravinia Everettii** Merr. in Philip. Jour. Sci. Bot. **10**: 107 (1915).

*Williamsia Everettii* Merr. Enum. Philip. Pl. **3**: 524 (1923).

NEGROS: Mt. Silay, alt. 700 m., *Everett* F.B. 7294, typus, F.B. 7268, nondum vidi. NEGROS ORIENTAL: Cuernos Mts., Dumaguete, *Elmer* 9641 (A, L), fr.

Evidently very near to the preceding species.

7. **Praravinia glabra** (Merr.), n. comb.

*Williamsia glabra* Merr. in Philip. Jour. Sci. Bot. **10**: 108 (1915), Enum. Philip. Pl. **3**: 524 (1923).

LUZON: Tayabas, Siniloan Trail, *Robinson* B.S. 9484 (L), ♀, exemplum typi; Laguna, *McGregor* B.S. 23047 (A, L), ♂; San Antonio, *Ramos* B.S. 16587 (L), ♀; Nueva Ecija, Mt. Umingan, *Ramos & Edaño* B.S. 26269 (A), (buds).

A specimen with oblong leaves, probably representing an undescribed species, was collected in Alabat Island [*Ramos & Edaño* B.S. 48249 (A)].

8. **Praravinia mimica** (Merr.), n. comb.

*Williamsia mimica* Merr. in Philip. Jour. Sci. **26**: 495 (1925), Enum. Philip. Pl. **4**: 254 (1926).

MINDANAO: Bukidnon, Mt. Candoon, *Ramos & Edaño* B.S. 38790 (A, K), ♀ exempla typi.

9. **Praravinia stenophylla** (Merr.), n. comb.

*Williamsia stenophylla* Merr. in Philip. Jour. Sci. **27**: 59 (1925), Enum. Philip. Pl. **4**: 254 (1926).

LUZON: Nueva Vizcaya, Caraballo Mts., *Loher* s.n., typus, nondum vidi.

The difference between this species and *Pr. glabra* is apparently but small: *Praravinia stenophylla* has narrower, not so completely glabrous, leaves.

10. **Praravinia mindanaensis** (Elm.), n. comb.

*Williamsia mindanaensis* Elm., Leaf. Philip. Bot. **5**: 1904 (1913); Merr. Enum. Philip. Pl. **3**: 524 (1923).

*Williamsia caudata* Merr. in Philip. Jour. Sci. Bot. **9**: 389 (1914)?

*Williamsia sablanensis* (Elm.) Merr. apud Elm., Leaf. Philip. Bot. **3**: 1001 (1911), quoad specimina in Mindanao lecta.

MINDANAO: Agusan, Cabadbaran, Mt. Urdaneta, *Elmer* 13561 (A, NY, L, K), ♀ et fr., exempla typi; Surigao, *Wenzel* 2788 (A, NY), (ster.), 2790 (A), (buds), *Ramos & Pascasio* B.S. 34782 (NY), ♀, *Ponce & Mallonga* B.S. 26233 (L., K.), fr.; Zamboanga, *Copeland* 1642 (K), fr.; Lake Lanao, *Mrs. Clemens* 531 (NY, K), fr.; Davao, Mt. Galintan, *Ramos & Edaño* B.S. 48882 (NY), fr.; Todaya, Mt. Apo, *Elmer* 11846 (A, L), fr.?

The Mindanao specimens agree on the whole very well with each other: in some of them the leaves are nevertheless remarkably narrow. *Elmer* 11846 is a dubious identification; it was quoted by Merrill (Enum. 3: 523) under *U. lucbanense*, but it looks to me more like a poor specimen of *Pr. mindanaensis*: it might be an undescribed species. The specimens collected in the other islands and distributed under this name belong probably to distinct, though nearly related species. Leyte, Samar, Biliran and Panay appear to have each a species of their own: for that occurring in Leyte the epithet *caudata* Merr. might be reinstated. The following specimens were studied:

LEYTE: Cabalian, *Ramos* B.S. 41542 (K, L), fr.; Abyog, *Fontanoza* B.S. 31130 (NY), fr., *Wenzel* 686 (A), ♀, exemplum typi *W. caudata* Merr., 7 (A), fr. SAMAR: Catubig River, *Sablaya* 97 (A), fr., *Ramos* B.S. 24386 (A, L, K), ♀. BILIRAN: *McGregor* B.S. 18744 (A, K), ♀. PANAY: *Martellino & Edaño* B.S. 35394 (A) ♂.

#### 11. *Praravinia Loheri* (Merr.), n. comb.

*Williamsia Loheri* Merr. in Philip. Jour. Sci. 28: 58 (1925), Enum. Philip. Pl. 4: 254 (1926).

LUZON: Tayabas, Mt. Binuang, *Ramos & Edaño* B.S. 28644 (A), fr.; B.S. 28766 (A), fr.; Rizal, Montalban, *Loher* 12309, typus, nondum vidi; Kalinga, Mt. Masingit, Lubuagan, *Ramos & Edaño* B.S. 37507 (A, L, K), fr.; Nueva Vizcaya, Mt. Alizapan, *Ramos & Edaño* B.S. 45586 (A, NY, K), fr.

This species is closely related to the next.

#### 12. *Praravinia sablanensis* (Elm.), n. comb.

*Urophyllum sablanense* Elm. Leaf. Philip. Bot. 1: 39 (1906).

*Williamsia sablanensis* (Elm.) Merr. in Philip. Jour. Sci. Bot. 3: 165 (1908); Elm. Leaf. Philip. Bot. 3: 1000 (1911), speciminibus mindanaensibus exclusis; Merr. Enum. Philip. Pl. 3: 524 (1923), quoad specimina luzoniensia.

LUZON: Abra, Mt. Posuey, *Ramos* B.S. 26983 (A), fr.; Benguet, Sablan, *Elmer* 6131 (NY, K), ♀, exempla typi; near Baguio, *Elmer* 8551 (L), fr.; *Williams* 1028 (NY), ♂; Union, Tonglon, *Loher* 6362 (K),

fr.; Rizal, Mt. Angilog, *Ramos B.S. 40792* (A), fr.; *Loher 6380* (K), fr.  
This species is the type of Merrill's genus *Williamsia*.

13. ***Praravinia affinis*** (Merr.), n. comb.

*Urophyllum affine* Merr. in Philip. Jour. Sci. **17**: 481 (1920), Enum. Philip. Pl. **3**: 521 (1923).

LUZON: Tayabas, Mt. Binuang, *Ramos & Edaño B.S. 28482* (A), ♂, *B.S. 28716* (A), (ster.), exempla typorum.

Merrill compared this species with *Urophyllum lucbanense* Elm., which has also been referred to *Praravinia*.

A specimen collected in Pollillo *McGregor B.S. 10211* (L), fr. might belong here, but it is much less hairy.

14. ***Praravinia panayensis*** (Merr.), n. comb.

*Williamsia panayensis* Merr. in Philip. Jour. Sci. **17**: 484 (1920), Enum. Philip. Pl. **3**: 524 (1923).

PANAY: Capiz, Jamindan, *Ramos & Edaño B.S. 31043* (A, K), ♀, exempla typi, *B.S. 31310* (A, L), fr. *B.S. 31315* (A, K), ♂ (buds).

15. ***Praravinia longistipula*** (Merr.), n. comb.

*Williamsia longistipula* Merr. in Philip. Jour. Sci. **17**: 485 (1920), Enum. Philip. Pl. **3**: 524 (1923).

MINDANAO: Agusan River, *Merrill 7287* (K), ♀ (corollas fallen), exemplum typi.

16. ***Praravinia negrosensis*** (Merr.), n. comb.

*Urophyllum negrosense* Merr. in Philip. Jour. Sci. Bot. **5**: 247 (1910); Elm. Leaf. Philip. Bot. **3**: 998 (1911); Merr., Enum. Philip. Pl. **3**: 523 (1923).

NEGROS: *Everett F.B. 5550*, typus, nondum vidi; Negros Oriental, Cuernos Mts., above Dumaguete, alt. 1200–1800 m., *Herre 1140* (A, NY), ♀.

If my identification of Herre's specimen is correct, this species comes very near to the next.

17. ***Praravinia multinervia*** (Merr.), n. comb.

*Williamsia multinervia* Merr. in Philip. Jour. Sci. Bot. **10**: 107 (1915), Enum. Philip. Pl. **3**: 524 (1923).

MINDANAO: Zamboanga, *Merrill 8085* (K), ♀, exemplum typi (corollas shed); Malangas, *Ramos & Edaño B.S. 36870* (A), fr. BASILAN: *Miranda F.B. 18933* (K), fr.; *Reillo B.S. 16110* (NY, L), fr.

18. **Praravinia triflora** (Quisumb. et Merr.), n. comb.

*Williamsia triflora* Quisumb. et Merr. in Philip. Jour. Sci. 37: 208 (1928).

LUZON: Tayabas, Casiguran, at a low altitude, *Ramos & Edaño B.S. 45458* (A, NY, K), ♂, exempla typi.

19. **Praravinia pubescens** (Quisumb. et Merr.), n. comb.

*Williamsia pubescens* Quisumb. et Merr. in Philip. Jour. Sci. 37: 210 (1928).

LUZON: Isabela, Mt. Moises, alt. 1200 m., *Ramos & Edaño B.S. 47275* (A, NY, K), fr., exempla typi; *Clemens 16852* fl. (nondum vidi); *17000* (K), fr.

Apart from the species enumerated above two as yet undescribed ones deserve attention; the specimens available to me, unfortunately, consist of fruiting branches only. One is a plant related to *Pr. acuminata*, but with much narrower leaves: it was collected on Mt. Dingalan, Tayabas [*Ramos & Edaño B.S. 26613* (A)]. The other one resembles *Pr. viridescens*, but is completely glabrous: it came from Ilocos Norte [between Bangui and Claveria, *Ramos B.S. 32995* (L)].

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